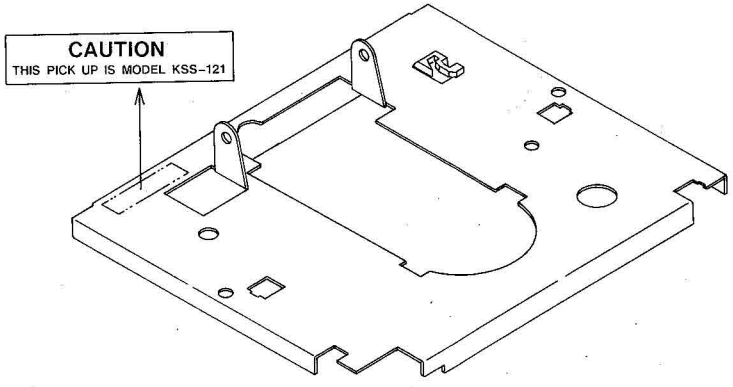
AKAI SERVICE MANUAL

COMPACT DISC PLAYER

MODEL CD-M88/T
MODEL CD-A7/T

The Pick-up has been changed from KSS-120A to KSS-121B since April, 1985 production. Accordingly, APC and −5V Power supply circuit on the Servo P.C Board has been changed.
This is no interchangeability between OLD and NEW parts.



V. REPLACEMENT OF THE PICK-UP BLOCK

5-1. PRECAUTIONS, WHEN REPLACING THE PICK-UP BLOCK

1) The LD (Laser Diode) fixed on the pick-up block PC Board can be damaged by static electricity or leakage from a soldering iron.
   Do not touch the PC Board of the pick-up block, or use a tester to check if the electricity is on. When soldering, make sure that precautions are taken to prevent leakage from the soldering iron.
2) Avoid scratches, dirt or dust on the lens of the pick-up caused by touching with the fingers.
3) When connection or disconnection the RED connector (P10), make sure that the PC Board is shorted circuit as shown Fig. 5-1.
   Do not turn the electricity "ON" while it remains shorted-circuited.
4) For your safety from hazardous invisible laser radiation, Replace only with pick-up BLK, Do not try to repair or any adjustment.

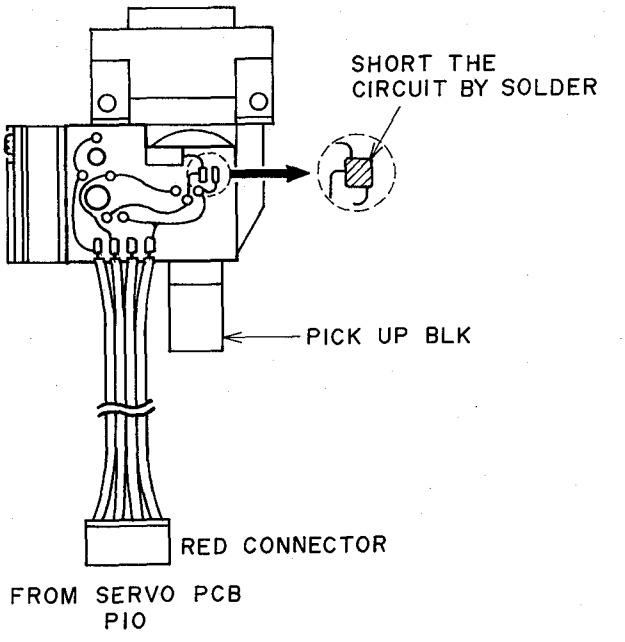


Fig. 5-1

5-2. PROCEDURES FOR CHANGING THE PICK-UP BLOCK

NOTE:
Keep your safety from hazardous invisible laser Radiation, Make sure that the Power switch is OFF, When removing the disc clamper.

1) Remove the top cover and the base and turn the power on. Press the eject button and open the disk holder. Then turn the power off.
2) Remove the three connectors on the pick-up block: P10, 15 and 16.
   Note: Make sure the LD is short circuited before removing the connectors.
3) Remove the slide gear fixed at the button. Refer to Fig. 5-3.
4) Move the disk clamper lever aside with a finger and remove the three disk motor fixing screws, Ⓐ Ⓑ and Ⓒ.
5) When the four screws Ⓓ, Ⓔ, Ⓕ and Ⓖ, for the metal fittings of the pick-up guide rail are removed, the pick-up block guied rail can be removed.

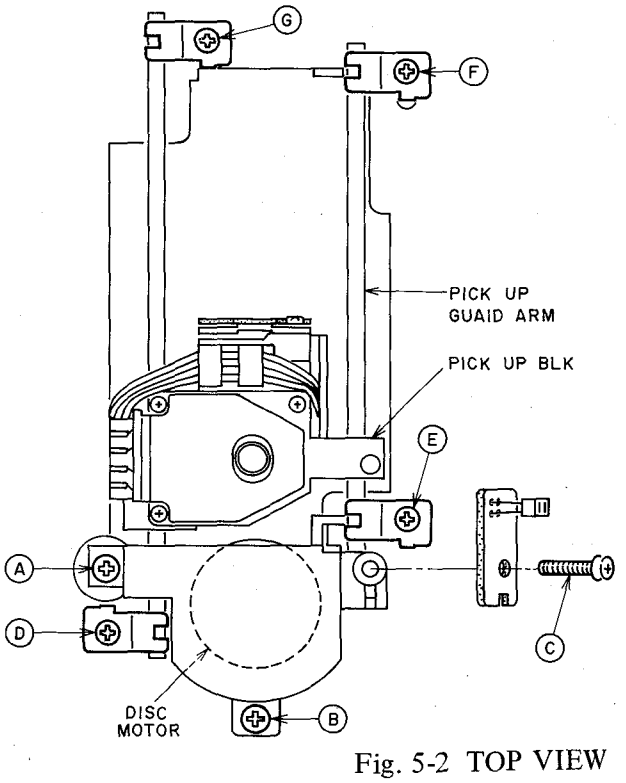


Fig. 5-2 TOP VIEW

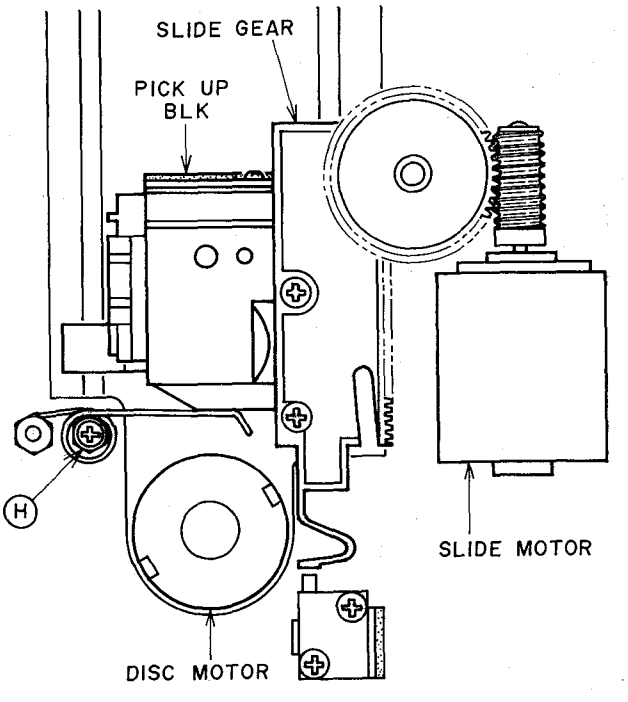


Fig. 5-3 BOTTOM VIEW

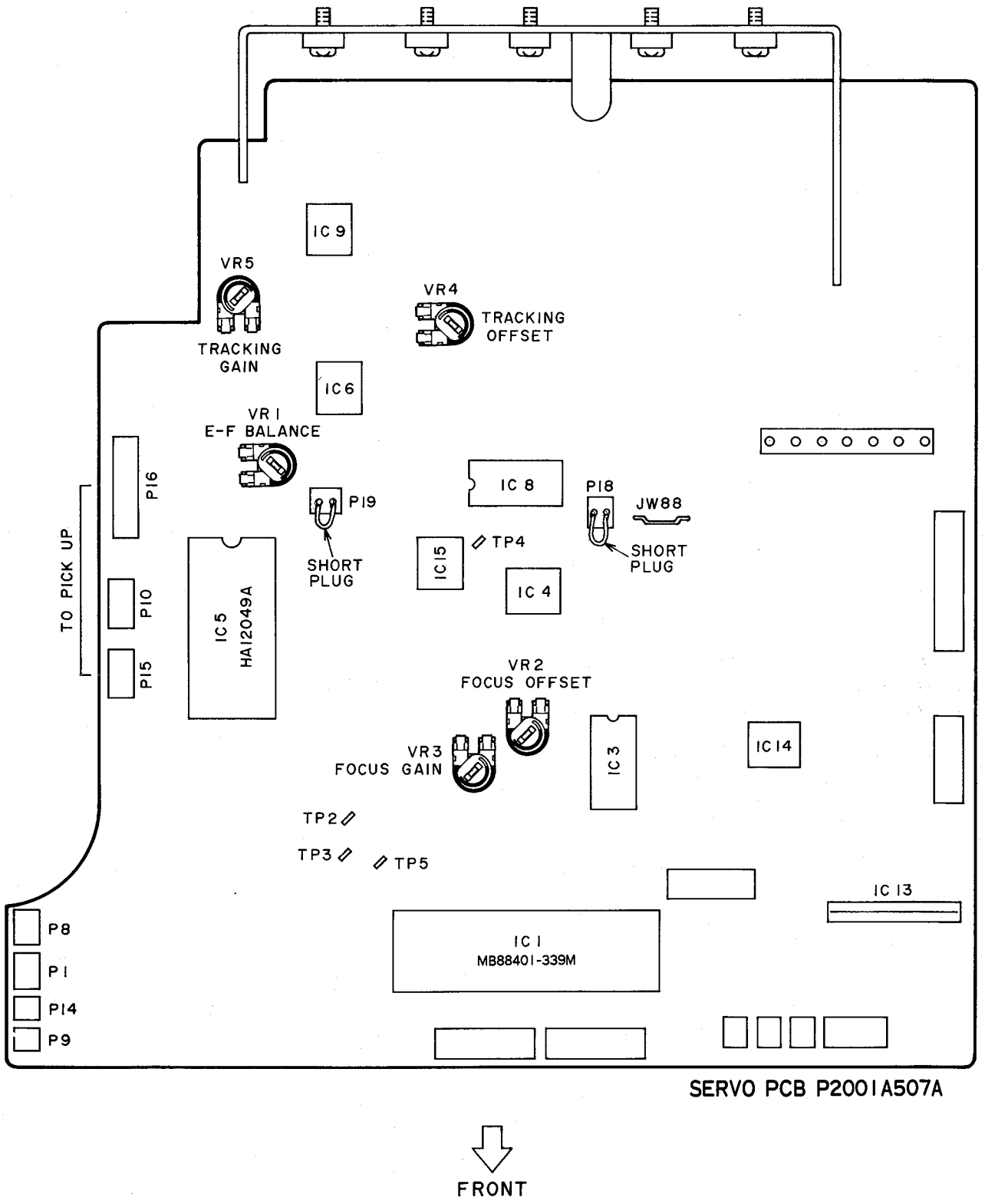


Fig. 6-1 SERVO PC Board Adjustment Points

6-1. ADJUSTMENT WHEN CHANGING THE PICK-UP

Change the pick-up, following the procedures in the item V, and when replacement is complete turn the short terminal of the LD (Laser Diode) to open.

6-1-1. OPTICAL AXIS ADJUSTMENT

If the mechanical eccentricity is large when fixing the pick-up tracking errors become large.
This in turn interferes with the tracking servo, so optical axis adjustment is necessary.

1) Disconnect J19 on the SERVO P.C. BOARD. (to turn the tracking servo off)
2) Place the normal music disc, then play-back the first music on it.
3) Connect an oscilloscope to TP5 on the SERVO P.C. BOARD, and observe the waveform as shown Fig. 6-2.
4) Turn the Adjustment screw Ⓗ by degress (Refer to Fig. 5-3) as waveform of TP5 will become maximum.

When it is difficult to observe maximum point of the waveform, use the following rectifier circuit as shown Fig. 6-3.
Observe a change in DC voltage through above rectifier with oscilloscope the Optical Axis so that the DC voltage reading become maximum.

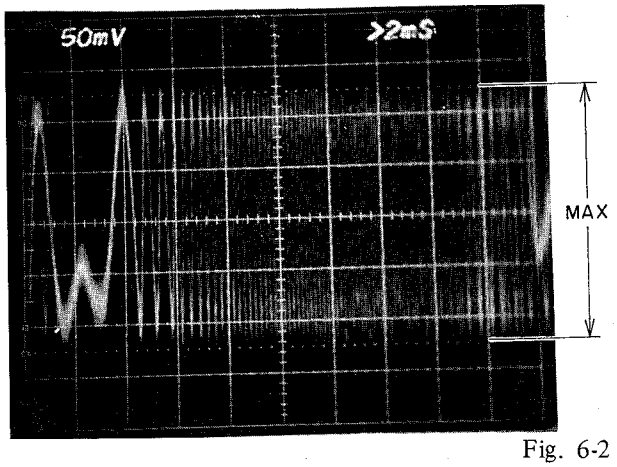


Fig. 6-2

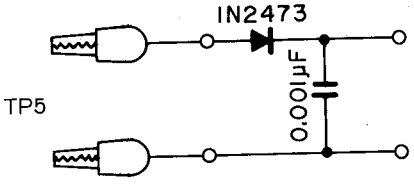


Fig. 6-3

6-1-2. READJUSTMENT OF E-F BALANCE

When the pick-up is changed, E-F balance adjustment must be performed. Refer to item 6-2-2 for adjustment.

6-1-3. CHECKING THE ELECTRIC CURRENT OF THE LASER

The electric current of the laser is indicated on the labels on the pick-up.

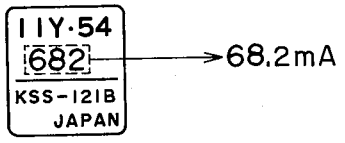


Fig. 6-4

1) Connect the millivoltmeter between TP2 and TP3 on the SERVO PC board and measure the voltage.

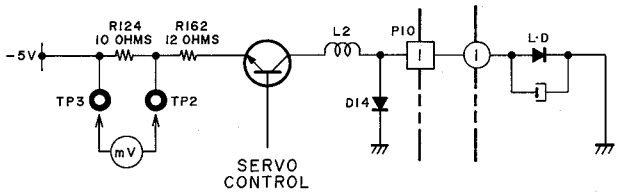


Fig. 6-5

2) Calculate the electric current of the laser from the voltage measured and check that is within $\pm\frac{10}{20}$ % of the recommended value.
Electric current of the laser = Voltage measured ÷ 10.
If the electric current of the laser exceeds 10% of the recommended value, changed the pick-up again.

6-1-4. APC (AUTOMATIC POWER CONTROL) CIRCUIT

This is a servo circuit to maintain the LD (Laser Diode) power of the pick-up. The LD power has been adjusted by VR1 at manufacture, Keep safety from hazardous invisible laser radiation, DO NOT TOUCH THIS VR1.

6-2. SERVO ADJUSTMENT

Servo adjustment is an adjustment to the control circuitry for accurate and safe disc play back. When adjusting use a sony type 3 (No. YEDS 7) or philips (No. 410056-2 or 400079-2) as a test disc.

6-2-1. FOCUS OFF-SET

1) Connect the oscilloscope to TP4 and the jumper wire JW88 on the SERVO PC board.
JW88 ..... DC Balance Voltage
TP4 ..... Eye pattern waveform.
2) Play back the test disc and adjust the VR2 so that the eye pattern wave forms are at their clearest. Check that the DC balance voltage is at minimum.

If the eye pattern wave forms when the DC balance is at minimum are not the same as the clearest ones, adjust so that the eye pattern wave forms are at their clearest.

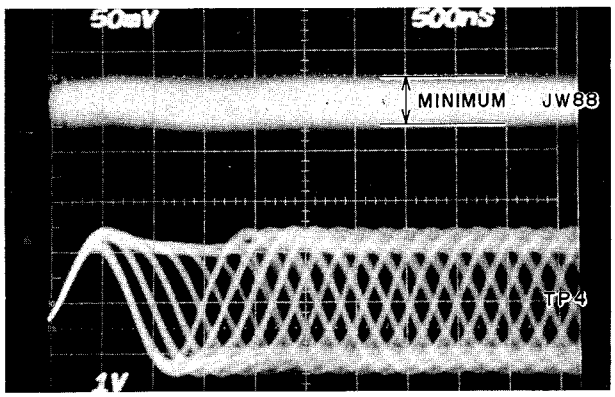


Fig. 6-6

6-2-2. E–F BALANCE ADJUSTMENT

This is to adjust the output balance of diodes E and F for tracking error detection.

When changing the pick-up adjusting the tracking constancy, this must be checked and adjusted.

1) Connect the oscilloscope to TP5 on the servo PC board.
   Measure direct current voltage via an integral circuitry between TP5 and the oscilloscope as in illustration Fig. 6-8.

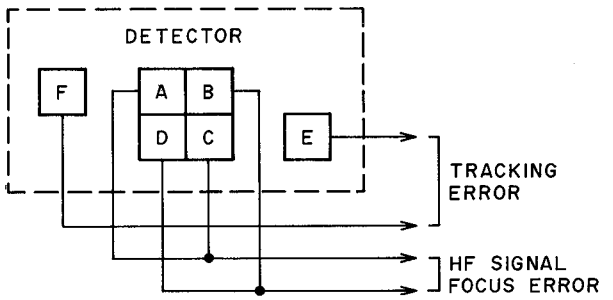


Fig. 6-7

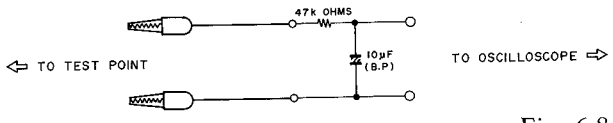


Fig. 6-8

2) Play back the test disc and set to pause mode.
3) Extract the short plug (P19) on the SERVO PC board.
4) Adjust the VR1 for E–F balance so that the voltage is 0V ±5mV.

6-2-3. TRACKING OFF–SET

1) Connect an oscilloscope to TP5 on the SERVO PC board. (Connect an oscilloscope as in Fig. 6-8.)
2) Play back the middle of test disc.
3) Adjust the tracking offset adjustment VR4 so that the voltage at TP5 is 0V±5mV.

6-2-4. FOCUS GAIN ADJUSTMENT

1) Connect the oscilloscope between P15–No. 1 terminal on the SERVO PC board and earth, and measure the voltage on the focus coil.
2) Play back the test disc and adjust VR3 so that the focus coil voltage is 500 to 600 mVp-p.

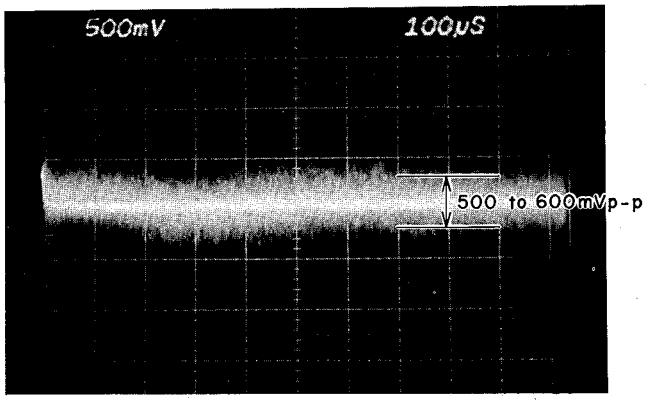


Fig. 6-9

6-2-5. TRACKING GAIN ADJUSTMENT

1) Connect the oscilloscope between P15–No. 2 terminal on the SERVO PC board and earth and measure the voltage on the tracking coil.
2) Play back the test disc and adjust VR5 so that the tracking coil voltage is 1.8 to 2.2Vp-p.

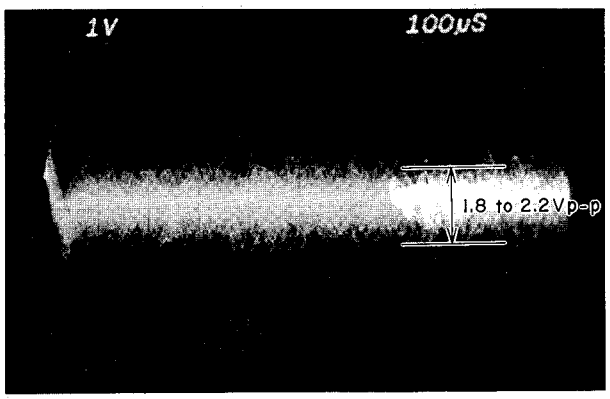


Fig. 6-10

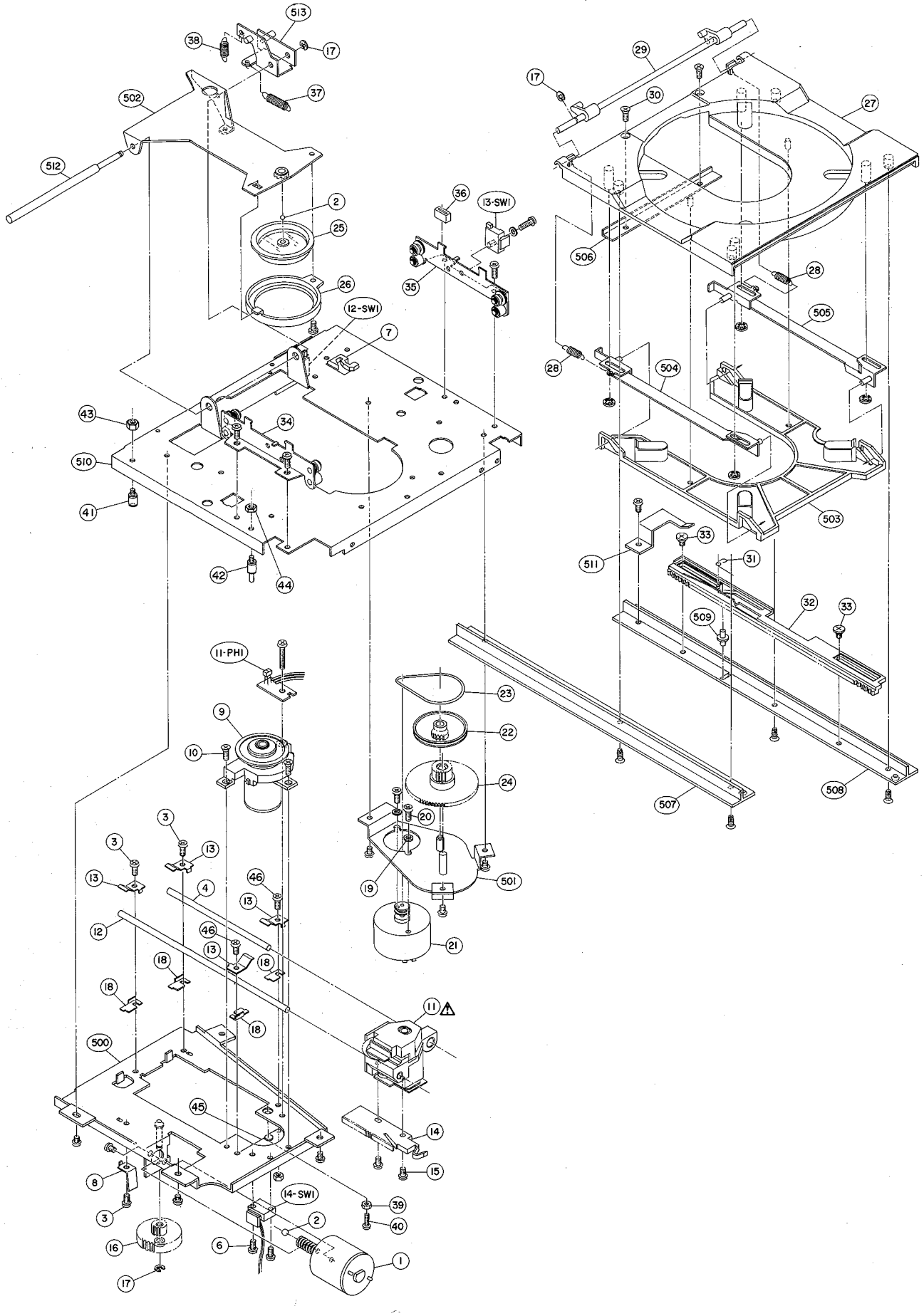
Reference:

If the sound jumps when the machine is lightly jolted, this means the tracking Gain is small.

If a disc with a scratch of 600μ is played and the sound jumps, this means the tracking Gain is large.

Philips No. 410056-2 TNO6,01'05" up till TNO7,00'02"

MECHA BLOCK


513
38
17
37
502
512
2
25
26
36
13-SWI
35
12-SWI
7
43
34
510
41
42
44
29
17
30
27
506
28
505
28
504
503
33
511
31
32
33
509
508
507
11-PHI
9
10
23
22
24
20
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501
21
3
3
13
13
46
4
13
12
46
13
18
18
18
18
11
500
45
14
15
8
3
14-SWI
39
40
16
6
2
1
17

The composite parts of this model, except for these which have been changed as listed following page. When ordering parts for this model please utilize model CD-A7 Parts List.

1. MECHA BLOCK

REF. NO.	PART NO.	DESCRIPTION
1-11	BO-359294	⚠ PICK UP KSS-121B
1-41	MB-357919	CUSHION
1-42	MB-358927	CUSHION ADJUST
1-43	ZW-325389	N26STL CMT 3
1-44	ZW-358045	N30STL CMT 3
1-45	ZG-359144	SP TORSION PICK UP
1-46	ZS-479474	PAN26X05STL CMT

2. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-2	BA-P2001A270A	PC SERVO BLK CD-M88-B (NEW)

5. SERVO PC BOARD (NEW)

REF. NO.	PART NO.	DESCRIPTION
5-TR31	ET-308141	TR 2SC2603 G F05
5-TR32	ET-200986	TR 2SD863-V8 F
5-TR34	ET-308472	⚠ TR 2SA1115 E,F,G F05
5-TR55	ET-322598	TR 2SB632K E,F
5-D32,33	ED-331197	⚠ D ZENER H HZ6 C1
5-D39	ED-346604	D ZENER H HZ7 B2

"TR30 is not required for this model."

The composite parts of this model, except for these which have been changed as listed following page. When ordering parts for this model please utilize model CD-M88 Parts List.

1. MECHA BLOCK

REF. NO.	PART NO.	DESCRIPTION
1-11	BO-359294	⚠ PICK UP KSS-121B
1-41	MB-357919	CUSHION
1-42	MB-358927	CUSHION ADJUST
1-43	ZW-325387	N26STL CMT 3
1-44	ZW-358045	N30STL CMT 3
1-45	ZG-359144	SP TORSION PICK UP
1-46	ZS-479474	PAN26X05STL CMT

2. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-2	BA-P2001A270A	PC SERVO BLK CD-M88-B (NEW)

5. SERVO PC BOARD (NEW)

REF. NO.	PART NO.	DESCRIPTION
5-TR31	ET-308441	TR 2SC2603 G F05
5-TR32	ET-200986	TR 2SD863-V8 F
5-TR34	ET-308472	⚠ TR 2SA1115 E,F,G F05
5-TR55	ET-322598	TR 2SB632K E,F
5-D32,33	ED-331197	⚠ D ZENER H HZ6 C1
5-D39	ED-346604	D ZENER H HZ7 B2

"TR30 is not required for this model."

AKAI ELECTRIC CO., LTD.

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TEL: Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261
Printed No. 860331-K1-3400 Printed Date:April 22, 1986
350 Printed in Japan

Additional

AKAI

MODEL CD-M88/T
MODEL CD-A7/T

SCHEMATIC DIAGRAM AND PC BOARD

1. BLOCK DIAGRAM OF IC's 2
2. CD-A7/T, CD-M88/T SERVO BLOCK DIAGRAM 6
3. CD-A7/T, CD-M88/T SIGNAL BLOCK DIAGRAM 7
4. CD-A7/T, CD-M88/T SERVO SCHEMATIC DIAGRAM 8
5. SERVO PCB P2001A507A, POWER SUPPLY PCB P2001D5042 (U) (E, B, S) (C, A), FLD PCB P2001C5030, LED PCB P2001A507E, OPERATION PCB P2001A507B, LED PCB P2001D5050 9
6. CD-A7/T, CD-M88/T SIGNAL SCHEMATIC DIAGRAM. 10
7. SIGNAL PCB P2001B502A 11
8. RC-80 REMOTE CONTROL SCHEMATIC DIAGRAM, CONTROL PCB 12

BLOCK DIAGRAM OF IC's

[PURPOSE OF EACH IC's]

NAME OF IC	PURPOSE
BA6109	Motor Control
HA12049	Signal Processing for DAD Player
HD61Z001	Abstract the FFM and SYNC. Signal, Main Clock etc.
HD61901A	EFM Demodulator, DE-Interlive, Error Detection and Correction, Control & Display Data Process.
HD61902A	Address Control for EXT. RAM, Protecting SYNC Signal, Output Control, Digital Servo Control
HD6805U1A61P	C-MOS nor Gate
HD6805	8 bit μ-Computer
HM6116P	16k bit Randum Access Memory
LB1245	High Voltage, Darlington Array
LM311P/IR9311	Voltage Comparator
M5218L0	Dual Low Noise Operational Amplifier
MB88401-331M	4 bit μ-Computer
MB84053B	Tripe-2 Channel Multiplexer/Demultiplexer
NJM4558D	Dual Low Noise Operational Amplifier
NJM5534D	Low Noise Operational Amplifier
NJM5221P	Dual Low Noise Operational Amplifier
PCM53JP-V	Digital to Analogue Convertor
TC4049BP	Analogue Switch
TC40H008P	High Speed C-MOS NAND Gate
TC4066BP	Inverter
TC4011BP	NAND Gate
μPC1373H	Pre-Amplifier for Remote Control

HD6805U1A61P[8bit μ-COMPUTER]

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	V_{SS}	To GND	21	D3	Sub Code Data Input
2	$\overline{RST}$	Reset INPUT	22	D2	
3	$\overline{INT}$	INTRRUPT INPUT	23	D1	
4	V_{CC}	+5 V INPUT	24	D0	
5	X'tal	Clock OSC INPUT 4MHz	25	B0	Not used
6	EX'tal		26	B1	KICK-S
7	NUM	To GND	27	B2	Not used
8	TM	Not used	28	B3	1Hz SIGNAL OUT
9	C0	4 bit Parallel Transfer Data IN/OUT	29	B4	Mute Control Out
10	C1		30	B5	Not used
11	C2		31	B6	KICK– Control Signal for Slide Motor
12	C3		32	B7	KICK+ Drive
13	C4	8 Address Clock	33	A0	CLVH, ROT, Motor Stop: Control Signal Out for CLV Servo.
14	C5	EXT. Clock	34	A1	
15	C6	Sub Code/Track Counter Change Control of INT	35	A2	
16	C7	4 Address Clock	36	A3	DC– Control Signal for Slide Motor
17		Not used	37	A4	DC+ Drive
18	D6	Ready	38	A5	Not used
19	D5	Focus OK	39	A6	
20	D4	INSIDE detector FOR PICK-UP	40	A7	

MB88401–339M

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	R4	Data Transfer Control	22	$\overline{SG}/\overline{TO}$	Data Transfer Control
2	R5	Data Strob out for Loarding Mech. SW, Operation KEY, and Display Data	23	SI	N.C
3	R6		24	SO	N.C
4	R7		25	O0	Display Data Output
5	R8		26	O1	
6	R9		27	O2	
7	R10		28	O3	
8	R11		29	O4	
9	R12	Loarding Motor Control out	30	O5	
10	R13		31	O6	
11	R14	Synchro Operation Code out	32	O7	
12	K0	Data Input of Loarding Mech. SW and Operation KEY	33	P0	Data Transfer Control
13	K1		34	P1	
14	K2		35	P2	Remote Control Gate Output
15	K3		36	P3	Reset Output for HD6805
16	EX	4MHz External Clock	37	R0	Transfer Data In/Out with HD6805
17	X		38	R1	
18	$\overline{Reset}$	RESET	39	R2	
19	$\overline{IRQ}$	Remo-con or Synchro Operation Code INPUT	40	R3	
20	$\overline{TC}$	N.C	41	V_M	+5V
21	V_{SS}	GND	42	V_{CC}	

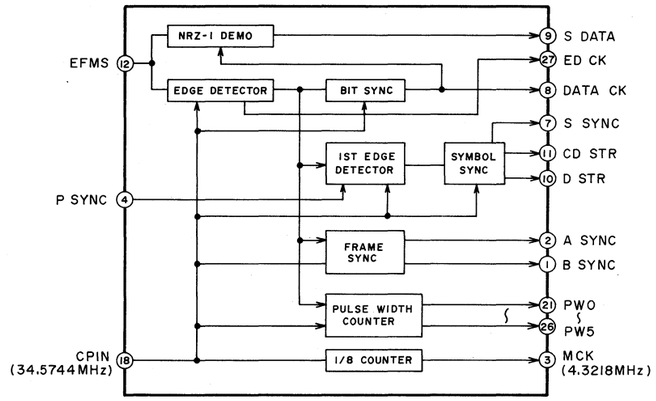
HD61901A

PIN NO.	NAME	FUNCTION
1 ~ 5	RD3 ~ RD7	DATA BUS (MSB)
6	TC1	Not use
7	TC2	Not use
8 ~ 12	EP3 ~ EP0	ERROR POINTER DATA Output (MSB ~ LSB)
13	OEN	(H: Enable)
14	Qsync	Qsync Signal Input
15	CORS	
16	MCK1	SIGNAL PROCESSING CLOCK Input (4.3218MHz)
17	SCK2	SIGNAL PROCESSING CLOCK Input
18	SCK1	SIGNAL PROCESSING CLOCK Input
19 ~ 22		+5V
23	VSS	GND
24 ~ 27		Not use
28	EMP	Control & Display (Emphasis) Output
29	VDD	+5V
30		Not use
31	Ssync	EFM Signal Lu PULSE Input
32	DATACK	DATA LCOCK Input
33	SDATA	EFM Signal Input
34	DSTR	STROB Signal Input of 8 bit DATA (except C&D)
35	CDSTR	STROB Signal Input of 8 bit DATA (C & D)
36 ~ 38	TEFR	+5V
39 ~ 46		Not use
47 ~ 48		+5V
49	IRQ	CRCFLAG Output of C,D Data
50 ~ 53	CDQ0 ~ CDQ3	C & D DATA Output (Q Data) (LSB ~ MSB)
54	CDP	Not use
55	MUI	Not use
56	CKEXT	CLOCK Input
57		Not use
58 ~ 60	RD0 ~ RD2	DATA BUS (LSB)

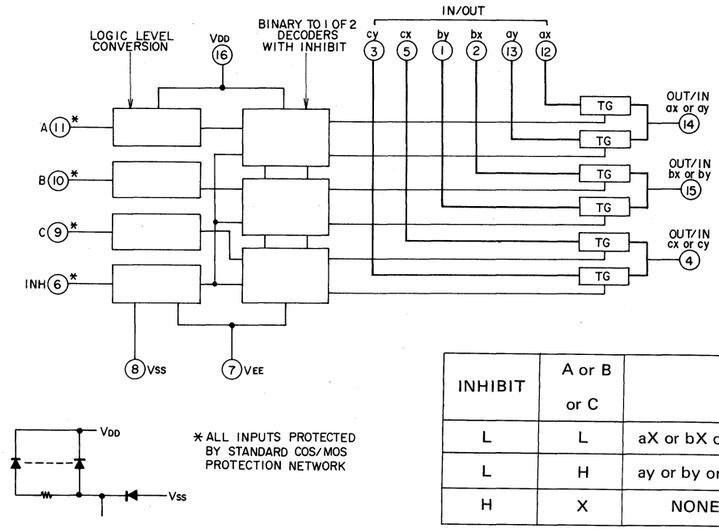
HD61902A

PIN NO.	NAME	FUNCTION	PIN NO.	NAME	FUNCTION
1	RD6	DATA Input from IC4 (HM6116)	47	SCK1	SIGNAL PROCESSING CLOCK Output
2	RD7		48	SCK2	SIGNAL PROCESSING CLOCK Output
3	MPX	Not use	49	MCK1	SIGNAL PROCESSING CLOCK Output (4.3218MHz)
4	SHL	SAMPLE HOLD Signal Output (L-CH) (H: SAMPLE L: HOLD)	50	CORS	
5	MPXN	Not use	51	Qsync	Qsync Signal Output
6	SHR	SAMPLE HOLD Signal Output (R-CH) (H: SAMPLE L: HOLD)	52	OEN	OEN Signal Output H"–ENABLE
7	CKDE	Not use	53	EPO	(LSB)
8	DAϕ	(LSB)	≀	≀	ERROR POINTER DATA Input
≀	≀	DATA Output to D/A CONVERTER	57	EP4	(MSB)
23	DA15	(MSB)	58	RST	RESET Signal Input (L: RESET H: NORMAL)
24	VSS	GND			
25	PWM	Maximum Pulse Wide Control Output	59	RAO	(LSB)
26	PD		≀	≀	RAM ADDRESS Signal Output
27 ≀ 29		Not use	69	RAIO	(MSB)
			70	CS	RAM CIP SELECT Signal Output (L: Cip Select)
30	PREF	REFRENCE Frequency Output for PWM (Duty 50% 33.8kHz)	71	WE	WRITE ENABLE Signal Output (L: Write Enable)
31	CLVH	CONTROL Signal from IC16 (HD6803)	72		
32	VDD	+5V	≀		+5V
33	ROT	CONTROL Signal from IC16 (HD6803)	74		
34	MUZ	MUTE Signal (L: Mute H: Normal)	75	RDϕ	(LSB)
35	PWϕ	(LSB)	≀	≀	DATA Input from RAM (HD6803)
≀	≀	PULSE WIDE DATA Input	80	RD5	
40	PW5	(MSB)			
41	EDCK	EDGE CLOCK Input of EFM			
42	TP	+5V			
43	Bsync	Bsync Input			
44	Async	Async Input			
45	MCK	MASTER CLOCK Input (4.3218MHz)			
46	Psync	Psync ( ) Signal Output			

HD61Z001

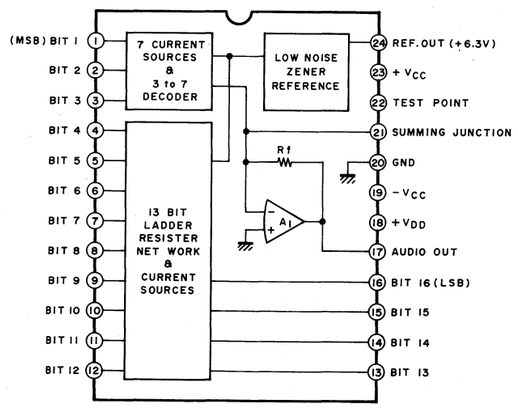


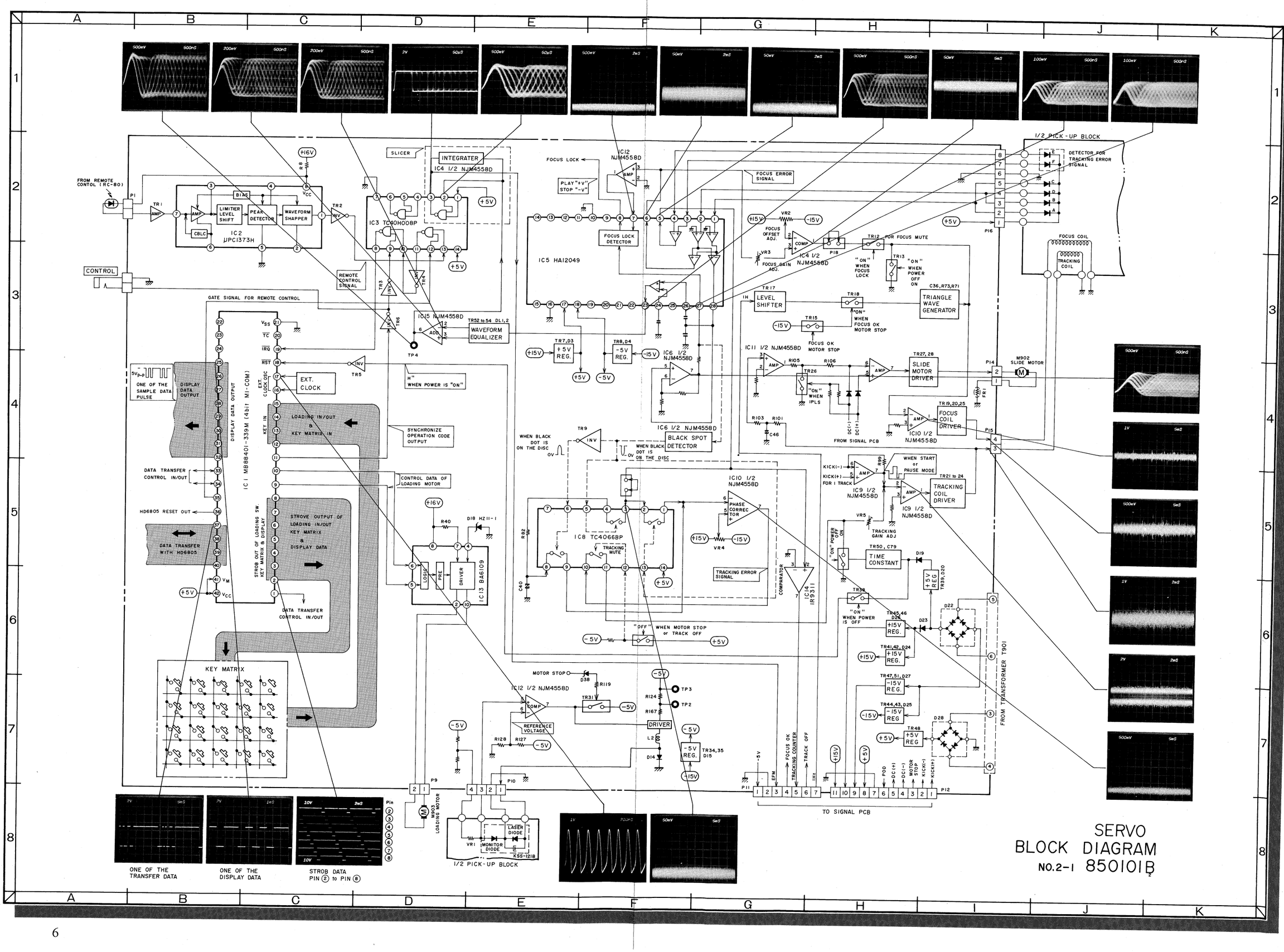
MB84053B

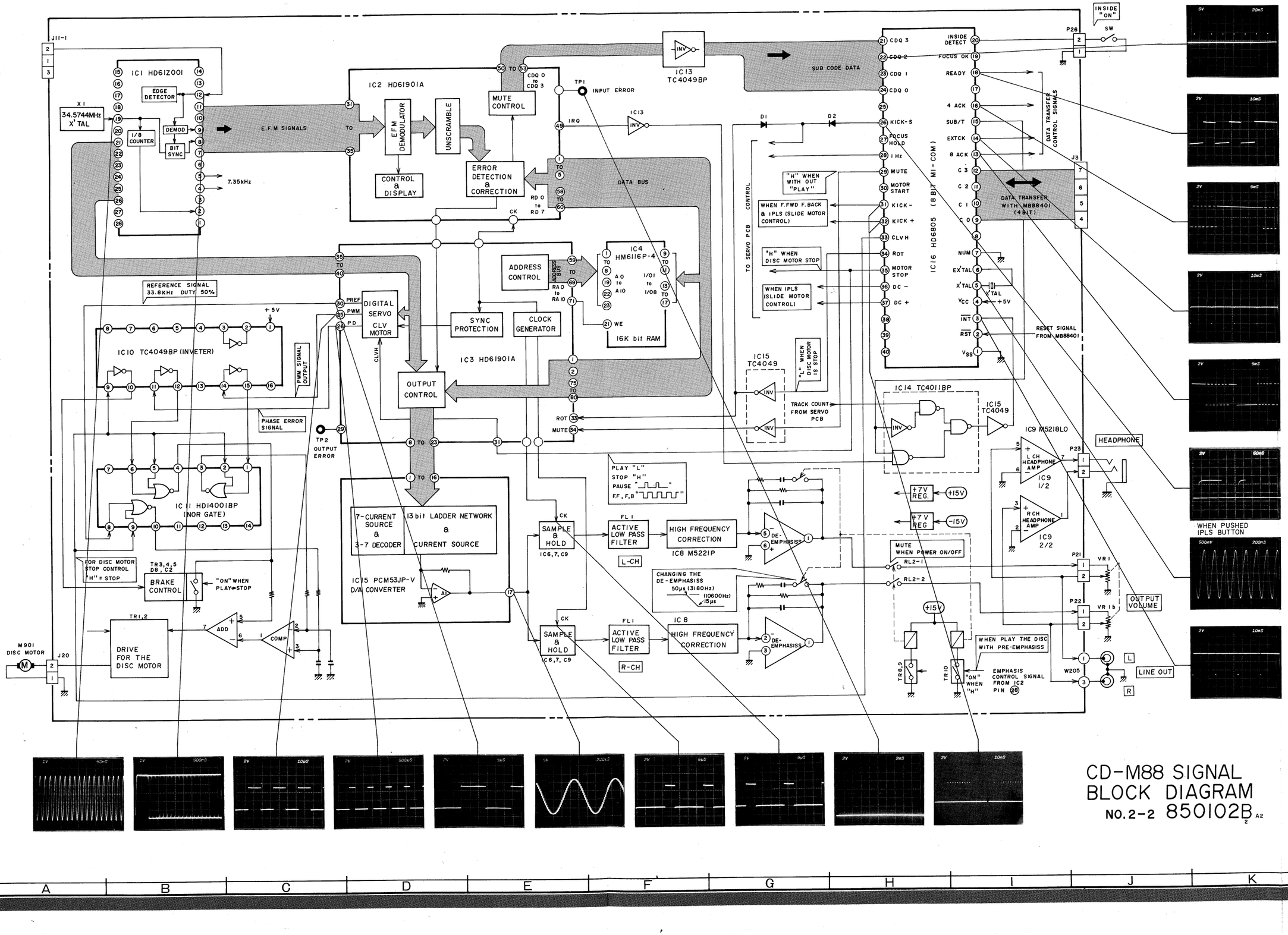


INHIBIT	A or B or C	
L	L	aX or bX or CX
L	H	ay or by or CY
H	X	NONE

PCM53JP-V




FROM REMOTE CONTOL (RC-80)
CONTROL
+16V
+5V
+15V
-15V
-5V
SLICER
INTEGRATER
IC4 1/2 NJM4558D
BIAS
LIMITER LEVEL SHIFT
PEAK DETECTOR
WAVEFORM SHAPPER
CBLC
IC2 μPC1373H
IC3 TC40H00BP
REMOTE CONTROL SIGNAL
GATE SIGNAL FOR REMOTE CONTROL
IC5 NJM4558D
TR52 to 54 DL1, 2
WAVEFORM EQUALIZER
TP4
5Vp-p
ONE OF THE SAMPLE DATA PULSE
DISPLAY DATA OUTPUT
IC1 MB88401-339M (4bit MI-COM)
EXT. CLOCK OSC
EXT. CLOCK
"H" WHEN POWER IS "ON"
KEY IN
LOADING IN/OUT & KEY MATRIX IN
SYNCHRONIZE OPERATION CODE OUTPUT
DATA TRANSFER CONTROL IN/OUT
CONTROL DATA OF LOADING MOTOR
HD6805 RESET OUT
STROVE OUTPUT OF LOADING IN/OUT KEY MATRIX & DISPLAY DATA
STROB OUT OF LOADING SW. KEY MATRIX & DISPLAY
DATA TRANSFER WITH HD6805
DATA TRANSFER CONTROL IN/OUT
KEY MATRIX
R40
D18 HZ11-1
IC13 BA6109
LOGIC
PRE
DRIVER
M903 LOADING MOTOR
P9
P10
LASER DIODE
MONITOR DIODE
VR1
KSS-121B
1/2 PICK-UP BLOCK
ONE OF THE TRANSFER DATA
ONE OF THE DISPLAY DATA
STROB DATA PIN ② to PIN ⑧
Pin
FOCUS LOCK
PLAY "+v" STOP "-v"
IC12 NJM4558D
FOCUS ERROR SIGNAL
FOCUS LOCK DETECTOR
IC5 HAI2049
FOCUS OFFSET ADJ.
VR2
VR3
FOCUS GAIN ADJ.
IC4 1/2 NJM4558D
TR12 FOR FOCUS MUTE
TR13
"ON" WHEN FOCUS LOCK
"ON" WHEN POWER OFF ON
TR17
LEVEL SHIFTER
TR18
"ON" WHEN FOCUS OK MOTOR STOP
C36,R73,R71
TRIANGLE WAVE GENERATOR
TR15
IC11 1/2 NJM4558D
TR27, 28
SLIDE MOTOR DRIVER
M902 SLIDE MOTOR
TR26
"ON" WHEN IPLS
FROM SIGNAL PCB
TR19,20,25
FOCUS COIL DRIVER
IC10 1/2 NJM4558D
TR9
WHEN BLACK DOT IS ON THE DISC
BLACK SPOT DETECTOR
IC6 1/2 NJM4558D
TR7,D3 +5V REG.
TR8,D4 -5V REG.
IC10 1/2 NJM4558D
PHASE CORRECTOR
IC8 TC4066BP
TRACKING MUTE
TRACKING ERROR SIGNAL
VR4
KICK(-) FOR 1 TRACK
KICK(+) FOR 1 TRACK
IC9 1/2 NJM4558D
WHEN START or PAUSE MODE
TR21 to 24
TRACKING COIL DRIVER
VR5
TRACKING GAIN ADJ
TR50, C79
TIME CONSTANT
D19
+5V REG TR39,D20
TR36
"ON" WHEN POWER IS OFF
"OFF" WHEN MOTOR STOP or TRACK OFF
IC14 IR9311
COMPARATOR
TR45,46 D26 +15V REG.
TR41,42, D24 +15V REG.
TR47,51, D27 -15V REG.
TR44,43, D25 -15V REG
TR48 +5V REG
D22
D23
D28
FROM TRANSFORMER T901
MOTOR STOP
D38
R119
IC12 1/2 NJM4558D
TR31
REFERENCE VOLTAGE
R128
R127
TP3
TP2
R124
R167
DRIVER
L2
D14
TR34,35 D15
-5V REG.
FOCUS OK
TRACKING COUNTER
TRACK OFF
EFM
SFDR
FOCUS COIL
TRACKING COIL
DETECTOR FOR TRACKING ERROR SIGNAL
I/2 PICK-UP BLOCK
TO SIGNAL PCB
SERVO BLOCK DIAGRAM
NO.2-1 850101B2



CD-M88 SIGNAL BLOCK DIAGRAM

NO. 2-2 850102B A2

SERVO PCB P2001A507A サーボ基板

LED基板
LED PCB (1/2)
P2001A5050
(CD-M88/T/88II)
P2001A507E
(CD-A7/T)

IC2 μPC1373H
BIAS
AMP
LIMITER LEVEL SHIFT
PEAK DETECTOR
WAVEFORM SHAPPER
CBLC

IC4 NJM4558D
IC3 TC40H008P
IC5 HA12049
LA AMP
LA SW
FOCUS LOCK DETECTOR
DATA SLICER
DSLC AMP
AGC AMP
TR AMP
IV AMP
F AMP
H AMP
IC6 NJM4558D
IC12 NJM4558D
IC15 NJM5534D
IC1 MB88401-339M
IC13 BA6109
IC14 IR9311
IC8 TC4066BP

TR1 2SK381 (C,D)
TR2 2SC2603(E,F)
TR3,4 2SC2603(E,F)
TR5 2SC2603 (E,F)
TR6 2SC2603 (E,F)
TR7 2SD1153 (E,F)
TR8 2SB865 (E,F)
TR29 2SC2603 (E,F)
TR31 2SC2603(E,F)
TR32 2SD863 (E,F)
TR33
TR34 2SA1115(E,F)
TR35 2SC2603 (E,F)
TR36 2SA1115(E,F)
TR37 2SA1115 (E,F)
TR52,53,54 2SC2999 (C,D)
TR55 2SB632K (E,F)

D1 PH302
D2 GMA-01
D3 HZ6L-2
D14 GMA-01
D15 HZ6.2
D16 DS448
D17 DS448
D18 HZ11-1
D30 HZ5C-2
D38 HZ8.2

CONTROL
J902
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P17
TO SIGNAL PCB J3

2SA1392
2SC3383
2SB764
2SB865
2SD1153
2SD863
2SA1248
2SB632K
2SC3116
2SD612K
2SA1115
2SC2603
2SC2999
2SK381

OPERATION PCB P2001A507B
オペレーション基板

SW-3 PCB スイッチ(3)基板
P2001D506D

SW-1 PCB スイッチ(1)基板
P2001D506A

LED PCB (2/2)
P2001A5050
(CD-M88/T,88II)
P2001A507E
(CD-A7/T)
LED基板

DETECTOR PCB
P2001D506B
検出基板

PICK-UP PCB (2/2)
ピックアップ基板

LOADING MOTOR
M903
RF-5007-1075

配電図中の電圧値は、プレイモードで測定した値を示します

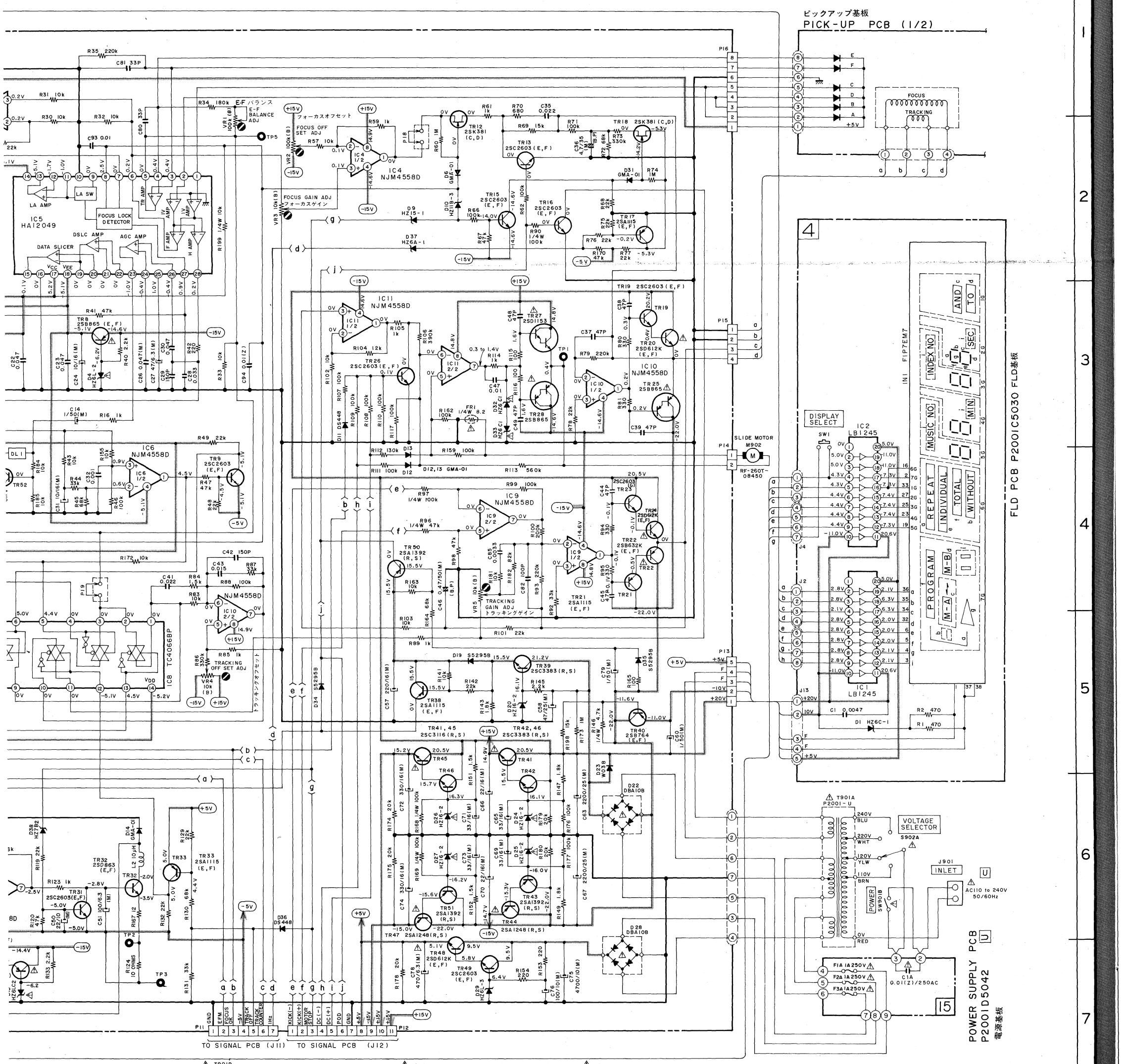
INDICATED VOLTAGES ARE MEASURED AT PLAY MODE.

備考
C, Rの単位(特に指定された部品以外)
抵抗……Ω 1/4W(J), (FS)記号は不燃性部品
コンデンサ……μF 50WV(J)
各電圧は、GND間のDC電圧をデジタルボルトメーターにて測定した値です。

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

+B (POWER SUPPLY) LINE
：B電源

001669



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NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

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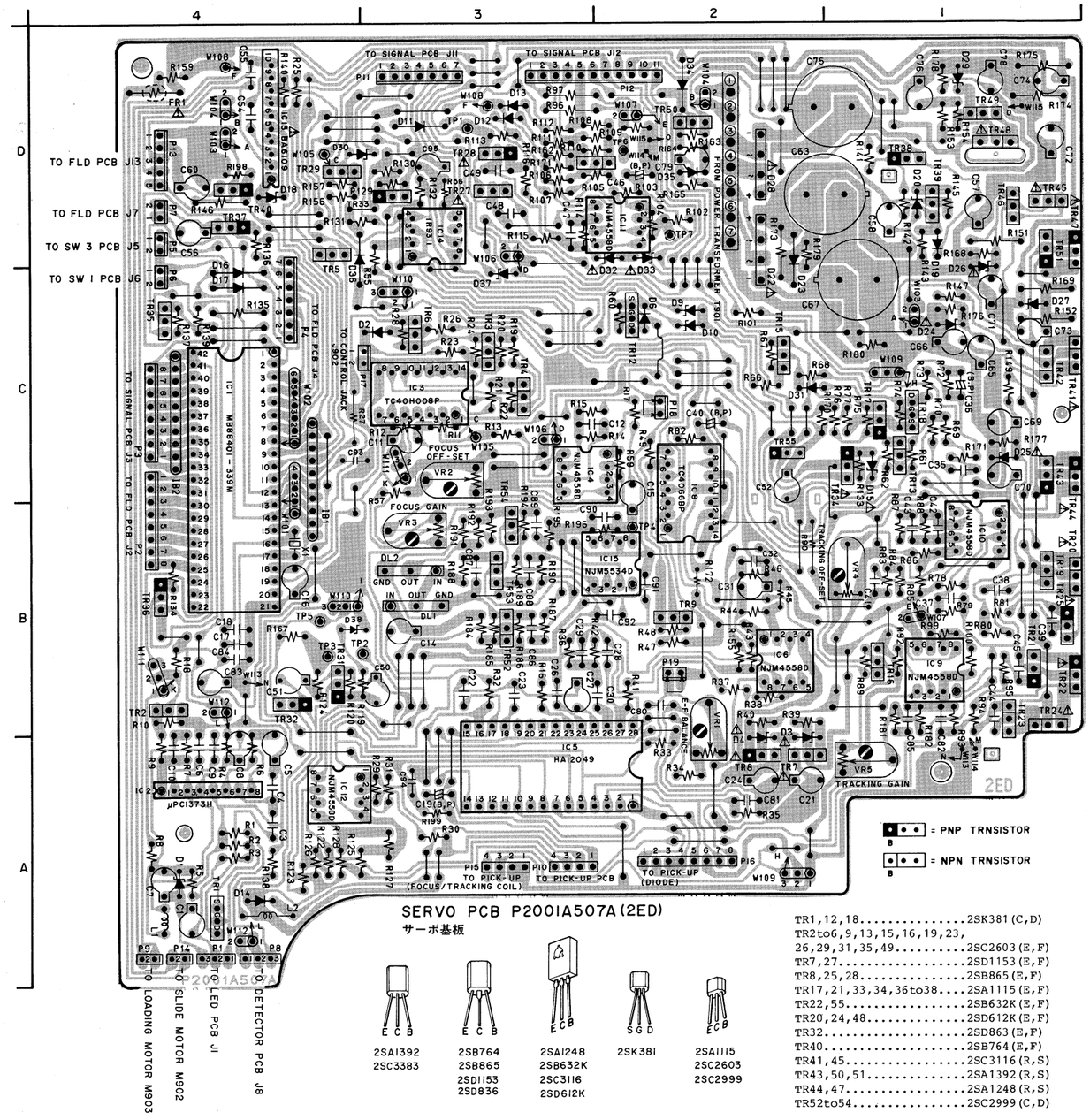
WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: △ IL INDIQUE LES COMPOSANTS CRITIQUES DE SURETE POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT

SERVO SCHEMATIC DIAGRAM

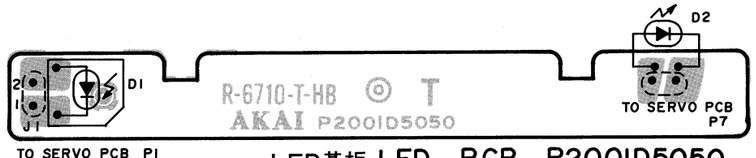
NO. 3-1 850103B



SERVO PCB P2001A507A(2ED)
サーボ基板

2SA1392 2SB764 2SA1248 2SK381 2SA1115
2SC3383 2SB865 2SB632K 2SC2603
2SD1153 2SC3116 2SC2999
2SD836 2SD612K

TR1,12,18.....2SK381(C,D)
TR2to6,9,13,15,16,19,23,
26,29,31,35,49.....2SC2603(E,F)
TR7,27.....2SD1153(E,F)
TR8,25,28.....2SB865(E,F)
TR17,21,33,34,36to38....2SA1115(E,F)
TR22,55.....2SB632K(E,F)
TR20,24,48.....2SD612K(E,F)
TR32.....2SD863(E,F)
TR40.....2SB764(E,F)
TR41,45.....2SC3116(R,S)
TR43,50,51.....2SA1392(R,S)
TR44,47.....2SA1248(R,S)
TR52to54.....2SC2999(C,D)



LED基板 LED PCB P2001D5050

LOCATION OF TR'S

TR1.....A4
TR2.....B4
TR3.....C3
TR4.....C3
TR5.....D4
TR6.....C3
TR7.....A2
TR8.....A2
TR9.....B2
TR12.....C2
TR13.....C1
TR15.....C2
TR16.....B1
TR17.....C1
TR18.....C1
TR19.....B1
TR20.....B1
TR21.....B1
TR22.....B1
TR23.....B1
TR24.....B1
TR25.....B1
TR26...D2,D3
TR27.....D3
TR28.....D3
TR29.....D4

TR31.....B4
TR32.....B4
TR33.....D3
TR34.....C1
TR35.....C4
TR36.....B4
TR37.....D4
TR38.....D1
TR39.....D1
TR40.....D4
TR41.....C1
TR42.....C1
TR43.....C1
TR44.....C1
TR45.....D1
TR46.....D1
TR47.....D1
TR48.....D1
TR49.....D1
TR50.....D2
TR51.....D1
TR52.....B3
TR53.....B3
TR54.....B3
TR55.....C2

LOCATION OF CONNECTORS

P1.....A4
P2....B4,C4
P3.....C4
P4.....C4
P5.....D4
P6.....C4
P7.....D4
P8.....A4
P9.....A4
P10.....A3
P11.....D3
P12...D2,D3
P13.....D4
P14.....A4
P15.....A3
P16.....A2
P17.....C3,4

LOCATION OF IC'S

IC1.....B4,C4
IC2.....A4
IC3.....C3
IC4.....C2,C3
IC5.....A2,A3
IC6.....B2
IC8.....B2,C2
IC9.....B1
IC10.....B1
IC11....D2,D3
IC12....A3,A4
IC13.....D4
IC14.....D3
IC15....B2,B3

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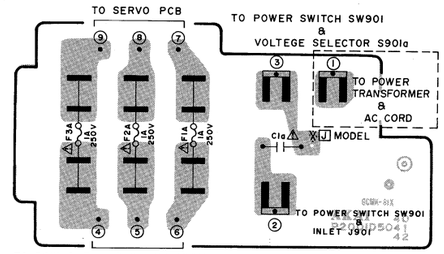
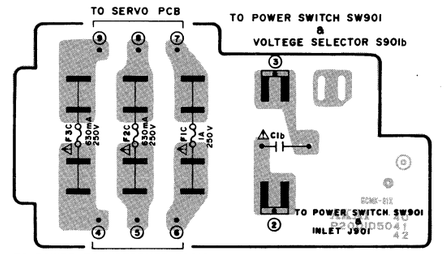
WARNING: △INDICATES SAFETY CRITICAL COMPONENTS.
FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

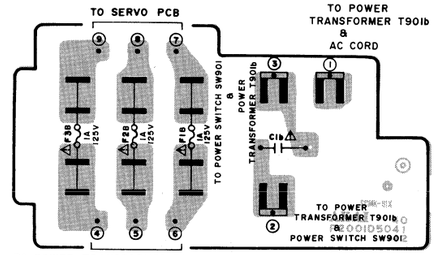
AVERTISSEMENT: △ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.



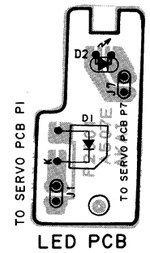
POWER SUPPLY PCB
電源基板 P2001D5042 U,J



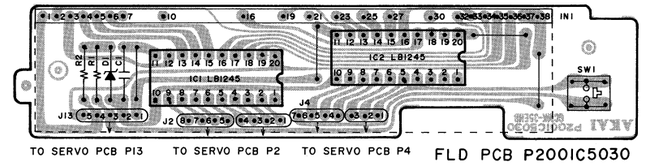
POWER SUPPLY PCB
電源基板 P2001D5042 E.B.S



POWER SUPPLY PCB
電源基板 P2001D5042 C.A

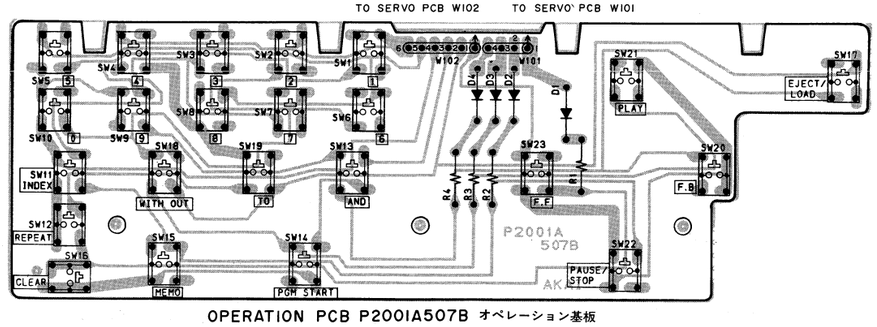


LED PCB
P2001A507E
(CD-M88/T,88II)
P2001A5050
(CD-A7/T)
LED基板

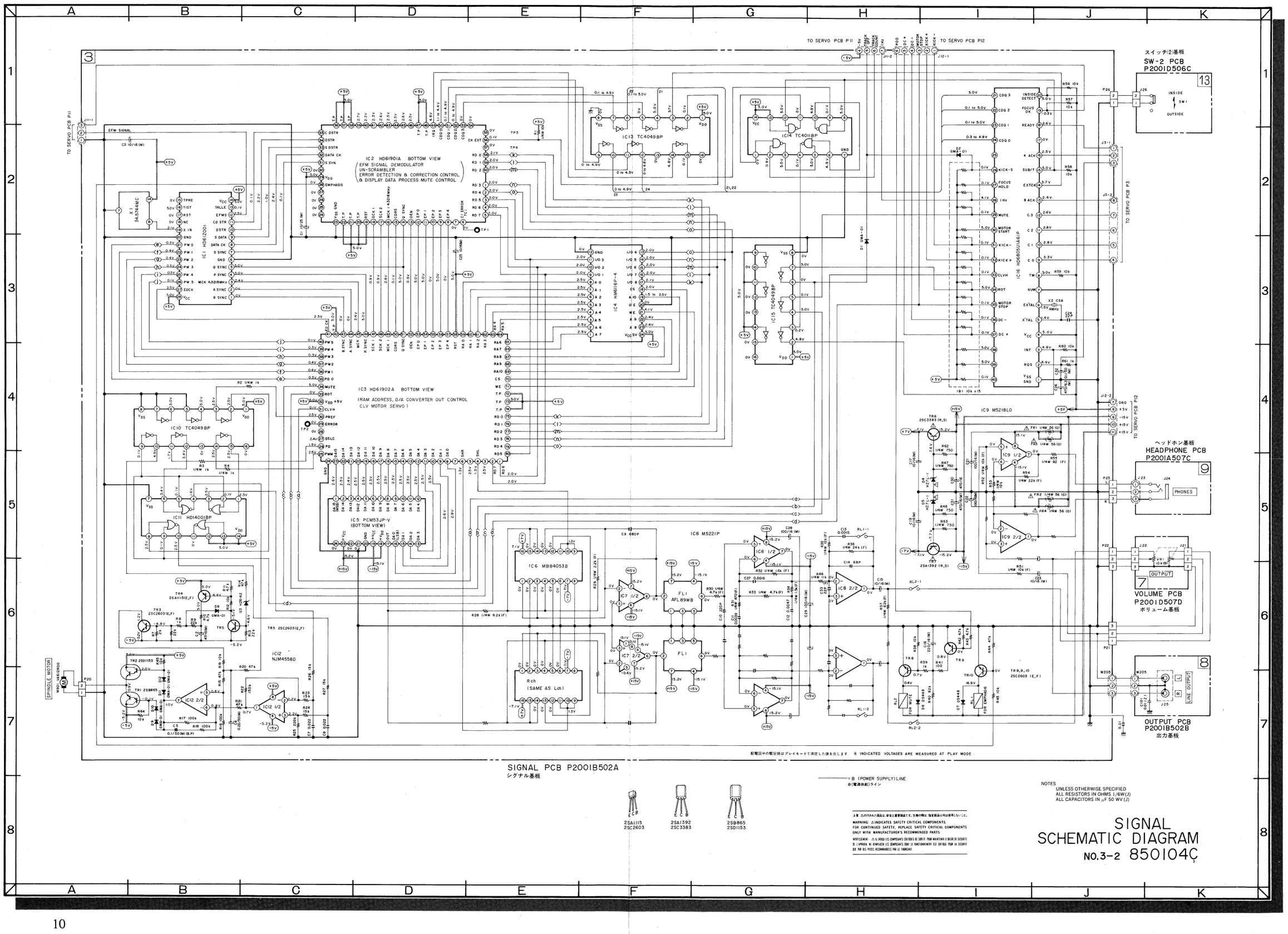


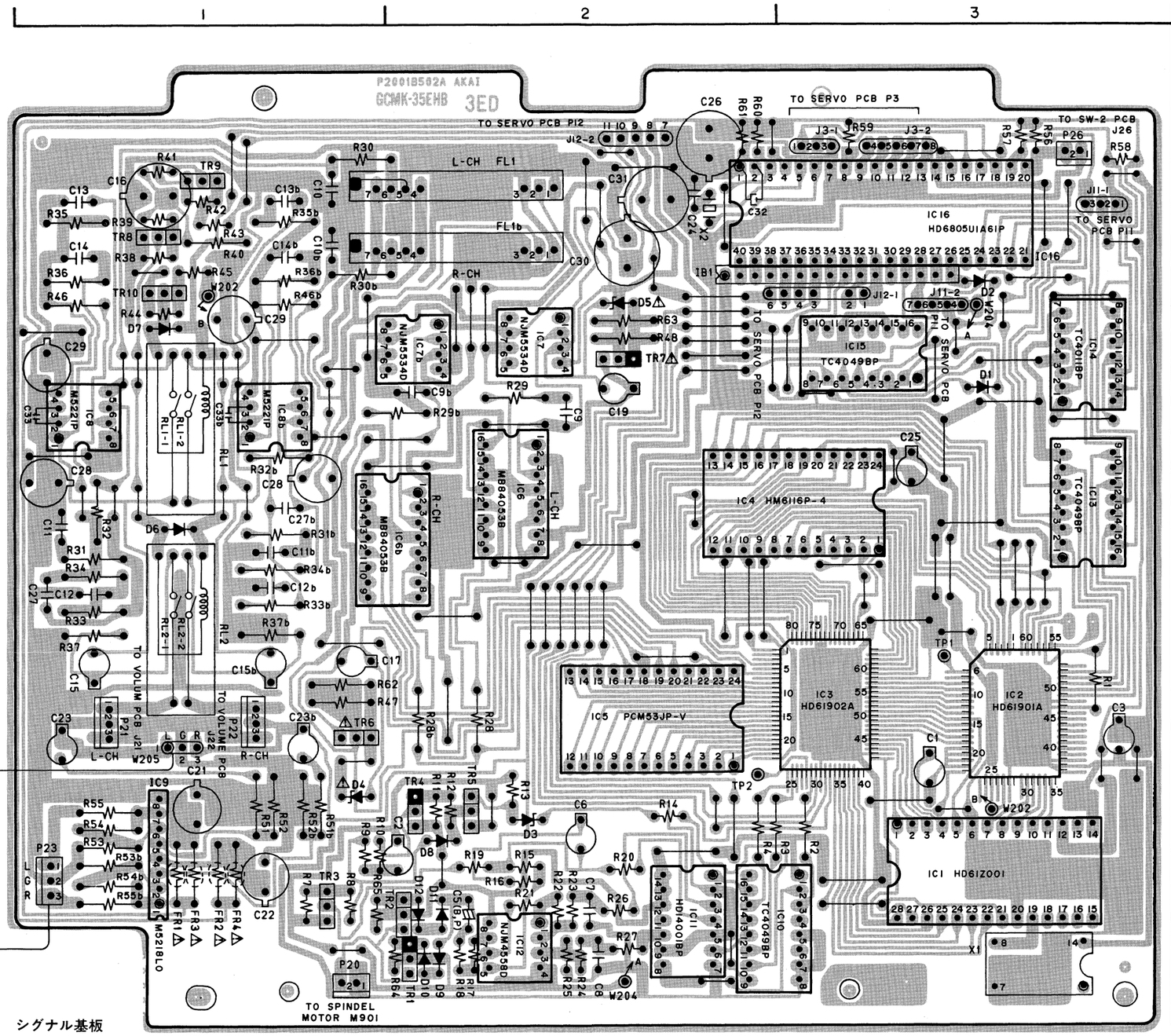
FLD PCB P2001C5030
FLD基板

TO SERVO PCB W102 TO SERVO PCB W101



OPERATION PCB P2001A507B オペレーション基板


TO SERVO PCB P11
TO SERVO PCB P12
スイッチ(2)基板
SW-2 PCB
P2001D506C
INSIDE
SW1
OUTSIDE
EFM SIGNAL
IC2 HD61901A BOTTOM VIEW
EFM SIGNAL DEMODULATOR
UN-SCRAMBLER
ERROR DETECTION & CORRECTION CONTROL
& DISPLAY DATA PROCESS MUTE CONTROL
IC1 HD61200
IC3 HD61902A BOTTOM VIEW
(RAM ADDRESS, D/A CONVERTER OUT CONTROL
CLV MOTOR SERVO)
IC4 HM6116P-4
IC5 PCM53JP-V
(BOTTOM VIEW)
IC6 MB84053B
IC7 1/2
IC8 1/2
IC8 2/2
IC8 M5221P
IC9 M5218L0
IC9 1/2
IC9 2/2
IC10 TC4049BP
IC11 HD14001BP
IC12 1/2
IC12 2/2
IC12 NJM4558D
IC13 TC4049BP
IC14 TC4011BP
IC15 TC4049BP
IC16 HD6805U1A61P
FL1 AFL89WB
TR1 2SB865
TR2 2SD1153
TR3 2SC2603(E,F)
TR4 2SA1115(E,F)
TR5 2SC2603(E,F)
TR6 2SC3383(R,S)
TR7 2SA1392(R,S)
TR8,9,10 2SC2603(E,F)
SPINDLE MOTOR
ヘッドホン基板
HEADPHONE PCB
P2001A507C
PHONES
VOLUME PCB
P2001D507D
ボリューム基板
OUTPUT PCB
P2001B502B
出力基板
LINE OUTPUT
TO SERVO PCB P3
SIGNAL PCB P2001B502A
シグナル基板
配電図中の電圧値はプレイモードで測定した値を示します ※ INDICATED VOLTAGES ARE MEASURED AT PLAY MODE
B (POWER SUPPLY) LINE
B(電源供給)ライン
2SA1115
2SC2603
2SA1392
2SC3383
2SB865
2SD1153
NOTES
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50 WV (J)
WARNING: △ INDICATES SAFETY CRITICAL COMPONENTS.
FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS
ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
SIGNAL
SCHEMATIC DIAGRAM
NO.3-2 850104C



TO SIGNAL PCB P21

OUTPUT TO SIGNAL PCB P22

VOLUME PCB
P2001A507D
ボリューム基板

LINE OUTPUT

R L

J25 R G L
W205

OUTPUT PCB
P2001B502B
出力基板

C101

PHONES

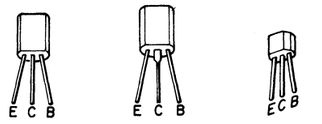
TO SIGNAL PCB P23

J24

HEAD PHONE PCB
P2001A507C
(CD-88/T,88II)
P2001A507F
(CD-A7/T)
ヘッドホン基板

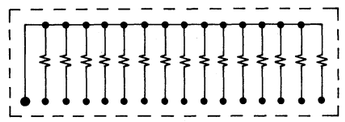
シグナル基板
SIGNAL PCB P2001B502A(3ED)

TR1,.....2SB865
TR2,.....2SD1153
TR3,5,8to10,.....2SC2603(E,F)
TR4,.....2SA1115(E,F)
TR6,.....2SC3383(R,S)
TR7,.....2SA1392(R,S)



= PNP TRNSISTOR

= NPN TRNSISTOR



LOCATION OF CONNECTORS

P20.....C1
P21.....B1,C1
P22.....B1,C1
P23.....C1
P26.....A3
J3-1.....A3
J3-2.....A3
J11-1....A3
J11-2....A3
J12-1....A3
J12-2....A2
W205.....C1

LOCATION OF TR'S

TR1.....C2
TR2.....C2
TR3.....C1
TR4.....C2
TR5.....C2
TR6.....C1
TR7.....A2
TR8.....A1
TR9.....A1
TR10.....A1

LOCATION OF IC'S

IC1.....C3
IC2.....B3,C3
IC3.....B3,C3
IC4.....B2,B3
IC5.....B2,C2
IC6.....B2
IC6b.....B1,B2
IC7.....A2
IC7b.....A1,A2
IC8.....A1,B1
IC8b.....A1,B1
IC9.....C1
IC10.....C2,C3
IC11.....C2
IC12.....C2
IC13.....B3
IC14.....A3
IC15.....A3
IC16.....A3

注意：⚠の付された部品は、安全上重要部品です。交換の際は、指定部品以外は使用しないこと。

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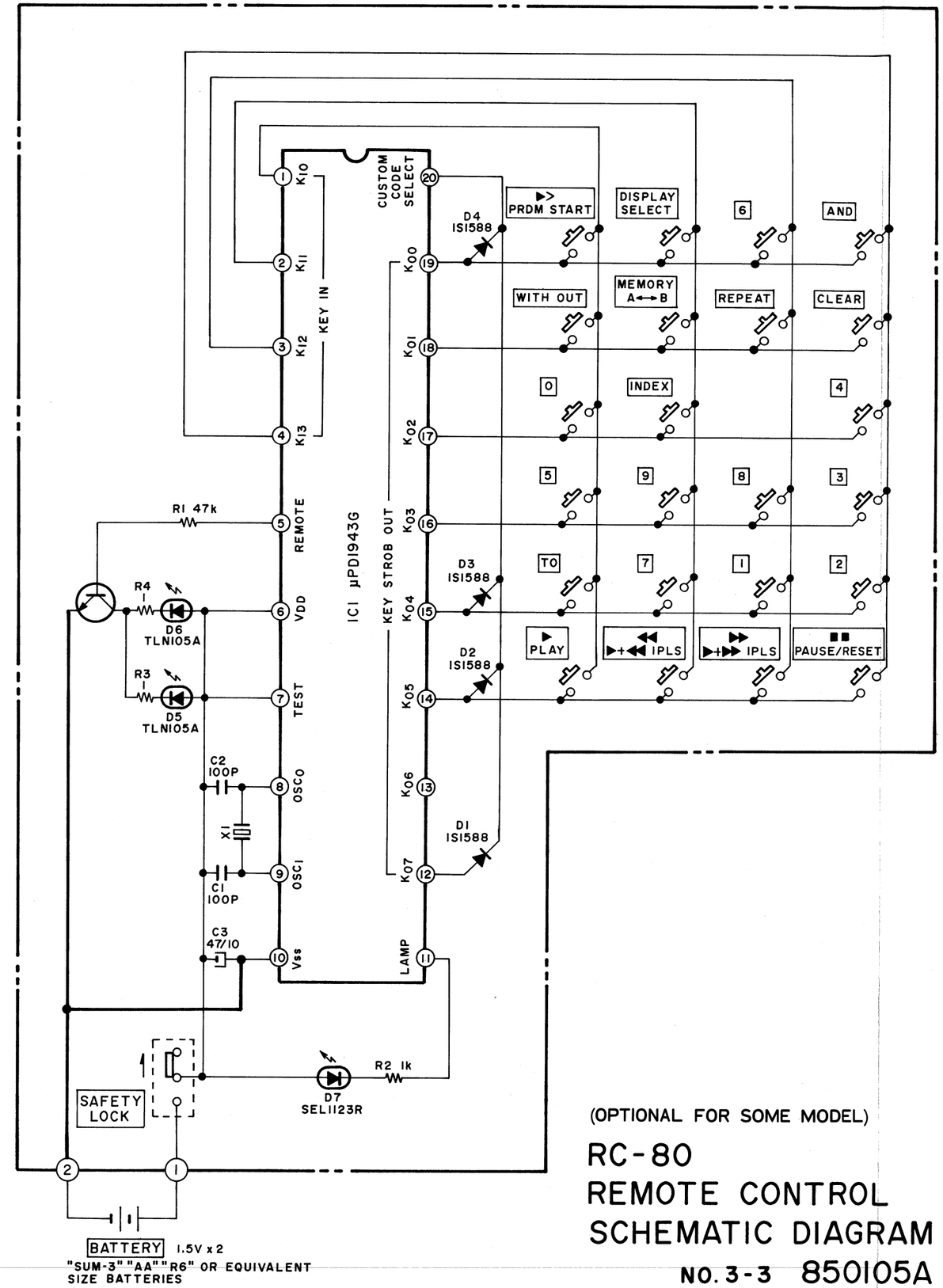
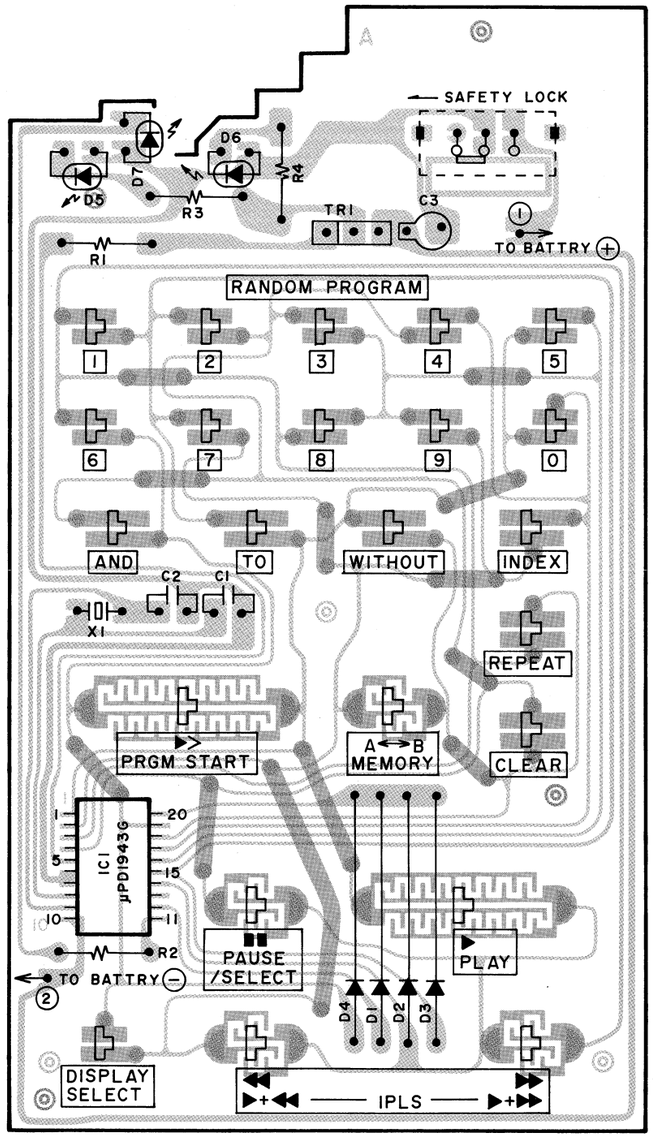


(OPTIONAL FOR SOME MODEL)

RC-80
REMOTE CONTROL
SCHEMATIC DIAGRAM
NO. 3-3 850105A



REMOTE CONTROL PCB
リモート コントロール基板

TRI --- 2SD1468

2SD1468

= NPN TRNSISTOR